

Abstract Submitted  
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**Floquet-Induced Superfluidity with Periodically Modulated Interactions of Two-Species Hardcore Bosons in a One-dimensional Optical Lattice**<sup>1</sup> AXEL PELSTER, Technical University of Kaiserslautern, TAO WANG, Hubei Key Laboratory of Optical Information and Pattern Recognition, Wuhan Institute of Technology, China, SHIJIE HU, SEBASTIAN EGGERT, MICHAEL FLEISCHHAUER, Physics Department and Research Center OPTIMAS, University of Kaiserslautern, Germany, XUE-FENG ZHANG, Department of Physics, Chongqing University, China — We consider two species of hard-core bosons with density dependent hopping in a one-dimensional optical lattice, for which we propose experimental realizations using time-periodic driving. The quantum phase diagram for half-integer filling is determined by combining different advanced numerical simulations with analytic calculations. We find that a reduction of the density-dependent hopping induces a Mott-insulator to superfluid transition. For negative hopping a previously unknown state is found, where one species induces a gauge phase of the other species, which leads to a superfluid phase of gauge-paired particles. The corresponding experimental signatures are discussed.

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